

Little Calumet River

DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

ASSESSMENT AND EVALUATION OF 3 ALTERNATIVE PLANS  
FOR FLOOD DAMAGE REDUCTION ALONG  
THE LITTLE CALUMET RIVER, INDIANA

THE ALTERNATIVE PLANS WILL BE DISCUSSED AT  
PUBLIC MEETINGS TO BE HELD AT 7:30 PM  
LOCAL TIME AT THE FOLLOWING DATES  
AND LOCATIONS

JANUARY 13, 1981  
AT Conference Room 205, INDIANA UNIVERSITY  
NORTHWEST, 3400 BROADWAY AVENUE  
GARY, INDIANA

JANUARY 14, 1981  
AT ROOM R103, M GYTE BLDG  
PURDUE UNIVERSITY CALUMET CAMPUS  
173rd STREET  
HAMMOND, INDIANA

JANUARY 21, 1981  
AT COUNCIL CHAMBERS, CITY HALL  
204 PULASKI STREET  
CALUMET CITY, ILLINOIS

JANUARY 22, 1981  
AT COUNCIL CHAMBERS, CITY HALL  
6070 CENTRAL AVENUE  
PORTAGE, INDIANA

APPROVED



## STUDY BACKGROUND

The Congress has directed the Corps of Engineers to complete a Phase I General Design Memorandum study of the feasibility of implementing a flood damage reduction, outdoor recreation, and recreational navigation project along the Little Calumet River, Indiana. This study is being conducted in three stages. The first stage outlined the study schedule and investigations to be conducted. The second stage consisted of analyzing eight intermediate alternative plans for flood damage reduction. The third stage consists of analyzing three of the eight intermediate alternative plans for flood damage reduction in greater detail. At the January public meetings we will discuss the three stage 3 plans and the results of the initial assessment and evaluation of the three plans. In addition, we will discuss concepts for outdoor recreation and recreational navigation which can be combined with the flood damage reduction plans into an overall recommended plan. There will be future public meetings which will discuss the final plan to be selected for recommendation to the Congress for authorization and implementation.

The purpose of this notice is to provide summary information on the three plans which will be discussed in more detail at the public meetings. In the three plans all levees and floodwalls west of Hart Ditch were initially designed for the Standard Project Flood (SPF). The Standard Project Flood is that flood that may be expected from the most severe combinations of meteorological and hydrological conditions that are reasonably characteristic of the geographical area in which the drainage basin is located, excluding extremely rare combinations. The set-back levees east of Cline Avenue in Plan 3 were designed for the 200-year event. The nonstructural measures in Plan 1 were designed for the 100-year event. After the public meetings additional work will be completed to optimize the level of flood protection to be recommended for implementation.

## EXISTING LEVEES

Levees currently exist intermittently along the Little Calumet River from the state line east to near Cline Avenue, a distance of approximately 6 miles. These existing levees apparently were not constructed in accordance with detailed engineering plans and specifications. Some of the levees are inadequately tied into high ground, have marginal side slopes and top widths, have varying elevations along each bank and between one side of the channel and the other, and are discontinuous in certain densely populated urban area. In addition, these levees have not been properly maintained as flood control structures.

There is a certain degree of "risk" as to whether or not these levees can sustain a major future flood. Upgrading these levees to standard design will probably be very costly. A substantial amount of "clearing and grubbing", together with a need to construct an inspection trench, would tend to reduce the remaining levee section to a point that they may not warrant retaining. Thus, in the three plans considered the existing levees will be replaced.



## PLAN DESCRIPTIONS

### PLAN 1

In Plan 1 a series of floodwalls and levees would be placed between the state line and Cline Avenue on both the north and south banks of the river as shown in figure 1. The western flanking scheme consists of a floodwall extending from the riverbank levees along the median strip of State Line Avenue in Hammond and Munster. The purpose of these flanking floodwalls is to prevent floodwater from circumventing the end points of the riverbank levees. No riverbank levees would be provided on the south bank at Wicker Park since this area will only be inundated by the less frequent flood events. The eastern tie-back scheme on the south bank consists of raising the existing median barrier along Cline Avenue. On the north side, Cline Avenue and the southeast approach ramp to I-80/94 would be raised. A parshall flume control structure would be placed in the vicinity of the confluence of Hart Ditch with the Little Calumet River to regulate the flows to the west. Limited dredging of the channel bottom would occur from near Hart Ditch eastward to Cline Avenue consisting of channel cleaning with no top widening. All bridges from Hohman Avenue east to Cline Avenue, with the exception of the Monon Railroad and I80/94 bridges and all foot bridges, would be raised to an elevation 3 feet above the design water surface. The bridge modifications which would be required are shown in table 1.

East of Cline Avenue a nonstructural flood damage reduction plan was developed. The nonstructural plan includes adequate management of the undeveloped portions of the floodplain either by acquisition for recreation purposes, principally in accordance with the Indiana Department of Natural Resources' recreation plans, or by local floodplain zoning regulation. For the existing developed areas, four approaches are used--protecting a cluster of structures by low berms or levees, elevating existing residential structures above the flood level, floodproofing commercial structures, or relocating structures out of the floodplain.

Low berms were selected for structures which do not have basements and receive less than three feet of flooding. The berms vary in height but are less than three feet. Elevating existing homes was considered applicable to all homes and apartments with basement damages which resulted from at least one foot of flooding. Structure raising was also considered for homes without basements that had more than three feet of flooding. Acquisition of structures were included in the plan if providing berms, elevating the structures, or floodproofing was considered impractical or if they were recommended for acquisition in the State's recreation plan. The National Flood Insurance Program recommends floodproofing for commercial buildings but recommends other nonstructural techniques for residential building. For this reason floodproofing was only considered for commercial buildings.

### PLAN 2

Plan 2 is identical to Plan 1 between the state line and Cline Avenue



East of Cline Avenue a 50-foot wide bottom channel continues to the Deep River confluence. The bridge crossings between Cline Avenue and Deep River are to be modified as shown in table 1.

### PLAN 3

Plan 3 is also identical to Plan 1 between the state line and Cline Avenue, including the channel modification, except that the parshall flume control structure is replaced by a gated structure. Setback levees, designed to protect against for the 200-year flood level, would be located as shown on figure 3. In general these are located as follows:

- a. Between Cline Avenue and E.J. & E Railroad on the northern bank.
- b. Between the Nickle Plate Railroad and Chase Street on the northern bank.
- c. From 11,000 feet west of Grant Street to 900 feet west of Martin Luther King Drive on the south bank.
- d. From Broadway Avenue to the Penn Central Railroad on the northern bank.

The channel bottom would be excavated with no top widening from Chase Street to the Penn Central Railroad to provide for flow during low river stages. The Burr Street bridge would be raised 2 feet. All other bridge crossings in this reach of channel excavation will be cleaned. A low weir capable of being removed during high flows will be placed at the upstream headwall of the Penn Central Railroad.

### ASSESSMENT AND EVALUATION PROCESS

A preliminary assessment and evaluation has been completed for the three alternative plans in order to assist in selecting the plan which is most desirable.

### ENVIRONMENTAL IMPACTS

Construction of any of the three alternative flood damage reduction plans would result in various impacts to the environmental resources of the Little Calumet River area. Impacts for the three plans will, however, be similar between the state line and Cline Avenue. The reconstruction of the existing levees would result in the loss of riparian vegetation which presently exists. All of the wildlife habitat value, aesthetic value and aquatic benefits associated with this riparian vegetation would be permanently lost. Additional losses of adjacent vegetated areas might also result due to the need for construction access and the ultimate maintenance of the new levees. No significant impacts are expected to result from the dredging and disposal of 28,000 cubic yards of dredged material for the three plans west of Cline Avenue and the construction of the control structures at Hart Ditch. Mitigation for the loss of the habitat will be considered in the future analysis.



Table 1 Bridge modifications - Plans 1, 2 &amp; 3 1/

Plan	Structure	Temporary scheme	Permanent modifications
1,2,3	Hohman Avenue	Temporary bridge	Raise 8 ft.
	I-80/94	None Needed	None
	Monon Railroad	None Needed	None
	Calumet Avenue	Use 1/2 bridge	Raise 8 ft.
	Columbia Avenue	Detour traffic	Raise 13 ft.
	Northcote Avenue	Detour traffic	Raise 7 ft.
	C & O Railroad	None Needed	Remove
	Erie Lackawana RR	Detour to C&O RR	Raise 8 ft.
	Indianapolis Blvd.	Use existing bridge	Raise 12 ft.
	Conrail(Penn Central)RR	Temporary bridge	Raise 10 ft.
2 con't	Kennedy Avenue	Use 1/2 bridge	Raise 7 ft.
	Cline Avenue	Use 1/2 bridge	Raise 5 ft.
	E.J. & E. Railroad	None needed	Lower bottom
	Colfax Street	None needed	Lower bottom
	Calhoun Street	None needed	Lower bottom
	N.Y.C. and SL Railroad	None needed	Lower bottom
	Burr Street	None needed	Lower bottom
	Clark Street	None needed	Lower bottom
	Chase Street	Detour traffic	Replace w/enlarged openings
	Private Road #1	Permanently detour	Remove
	Frontage Road #1	Permanently detour	Remove
	Grant Street	Detour traffic	Replace w/enlarged openings
	Frontage Road #2	Permanently detour	Remove
	Harrison Street	None needed	Lower bottom
	Broadway Street	Temporary bridge	Replace w/enlarged openings
	Georgia Street	Detour traffic	Replace w/enlarged openings
	I-80/94	Detour to opposite lanes	Replace w/enlarged openings
	Farm bridge	Permanently detour	Remove
	Penn Central(Commuter)	Use 1/2 bridge	Replace w/enlarged openings
	Martin Luther King	Use 1/2 bridge	Replace w/enlarged openings
	Private Road #2	Permanently remove	Remove
	Private Road #3	Permanently remove	Remove
	I-65	Detour to opposite lanes	Replace w/enlarged openings
	Colorado Street	Detour traffic	Replace w/enlarged openings
3 con't	Burr Street	Detour traffic	Raise 2 ft.
	Private Road #1	Permanently detour	Remove
	Frontage Road #1	Permanently detour	Remove

1/ During Construction



East of Cline Avenue the impacts of the three plans are somewhat different. The environmental impacts due to the nonstructural aspects of Plan 1 are not expected to be significant. This plan will provide opportunities to manage the wetlands and improve their wildlife habitat value. Plan 2 would result in significant deepening and widening of the river between Chase Street and the confluence with Deep River. This would result in the physical destruction of several acres of wetlands due to the widening and possible loss of some acres of wetlands due to an alteration of the groundwater regime. Wetland communities will convert to terrestrial communities with changes in associated wildlife habitat and species composition. Based upon the preliminary data that is available, any problems due to lowering the water table upon existing floodplain structures should be negligible. The disposal of 800,000 cubic yards of dredged material in the river corridor would be in such a manner as to prevent any adverse affects to the high groundwater table.

Construction of the set-back levees in Plan 3 are not expected to cause significant impacts to the wetlands. This plan, as with Plan 1 will provide opportunities to manage the wetlands and improve their wildlife habitat value. No significant impact will result from the three plans on aquatic resources because the existing stream bottom habitat is seriously degraded and water quality is very poor.

#### SOCIAL IMPACTS

The social impacts associated with the three plans are similar west of Cline Avenue with the most significant potential impact resulting from the construction of the state line flanking floodwall. Adverse social-psychological impacts may result depending upon how the residents of the adjacent area view the effects of the structure. The floodwall would not provide flood protection to Illinois residents nor would it increase flood elevations in Illinois. Property and aesthetic values might be affected as might community cohesion between the adjacent state communities. The location of a wall down the median of a residential street may also attract children, creating a safety hazard.

The nonstructural portion of Plan 1 includes relocating some commercial operations and residential families out of the floodplain. Although the displaced families and businesses would be compensated, moving would have a social impact since relocating involves severing old neighborhood ties and establishing relationships in new neighborhoods. The area affected by the relocation plan is called Black Oak, an area recently annexed by the city of Gary. The Hammond Railroad relocation study by the Federal Highway Administration and the Indiana State Highway Commission also proposed relocation of structures in this area. While the relocated structure would be different for the two projects, the impacts on the community could be intensified by cumulative effects.

Other social impacts from the three plans include a possible loss of property tax revenues to local governments due to the conversion of private land to public ownership but this may be offset if adjacent property evaluation is increased due to the reduction in the flood hazard. Lands being cultivated for truck farming would be converted to non-agricultural



use. Traffic disruption would occur during the construction stages, particularly at those bridge crossings which would have to be modified. Construction activity would cause short-term adverse effects on noise, air and aesthetic values. Employment and the labor force would increase during this period.

#### COST ESTIMATES

The preliminary estimated costs for the three alternative flood damage reduction plans are shown in table 2. A very preliminary apportionment of the costs of the three plans between Federal and non-Federal interests has been made based on existing Federal legislation and based on proposed changes to existing Federal law that have been recommended by the President. For Plan 1 the non-Federal share ranges from \$17,800,000 (Presidential) to \$21,800,000 (legislative). The non-Federal share for Plan 2 ranges from \$20,300,000 (Presidential) to \$25,300,000 (legislative), while for Plan 3 the range is from 22,300,000 (Presidential) to \$22,200,000 (legislative).

Table 2 Estimated first cost flood damage plans <sup>1/</sup>

Plan	Cost
1	\$71,700,000
2	\$81,700,000
3	\$89,500,000

<sup>1/</sup> October 1980 prices.

#### BENEFIT ANALYSIS

The flood damage reduction benefits are presently based only on flood damages that may be sustained by residential structures. Between the state line and Cline Avenue, the average annual residential flood damages are estimated to be \$9,737,000. For east of Cline Avenue the average annual residential flood damages are estimated to be \$62,000.

Overbank flood damage would be essentially eliminated by the SPF level levees between the state line and Cline Avenue. East of Cline Avenue Plan 1 would reduce the damages by \$54,000, Plan 2 would reduce the damages by \$57,000 while Plan 3 would also reduce damages by \$57,000. The total benefit-cost analysis of the three plans is shown in table 3.

Table 3 Benefit-cost summary <sup>1/</sup>

Item	Plan 1	Plan 2	Plan 3
Average annual benefits	\$9,791,000	\$9,793,000	\$9,793,000
Average annual costs	5,915,000	6,735,000	7,375,000
Benefit-cost ratio	1.6	1.5	1.3

<sup>1/</sup> October 1980 prices.

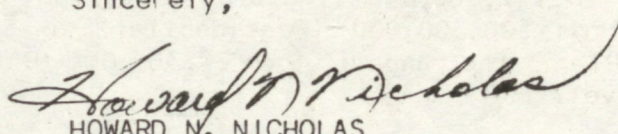


## PUBLIC VIEWS AND INPUT

At the public meetings in January we will be reviewing the information on the three alternative plans, obtaining input on your assessment of the plans, and answering questions. It is important that you present your views at the public meeting or in a letter to us during the 30 day comment period following the public meeting, so that we may have the benefit of your input before selecting the plan to optimize. A public meeting will be held at the conclusion of the optimization work to discuss the plan to be recommended for implementation.

If you know of anyone who would be interested in attending the public meeting, please advise them so that they may participate.

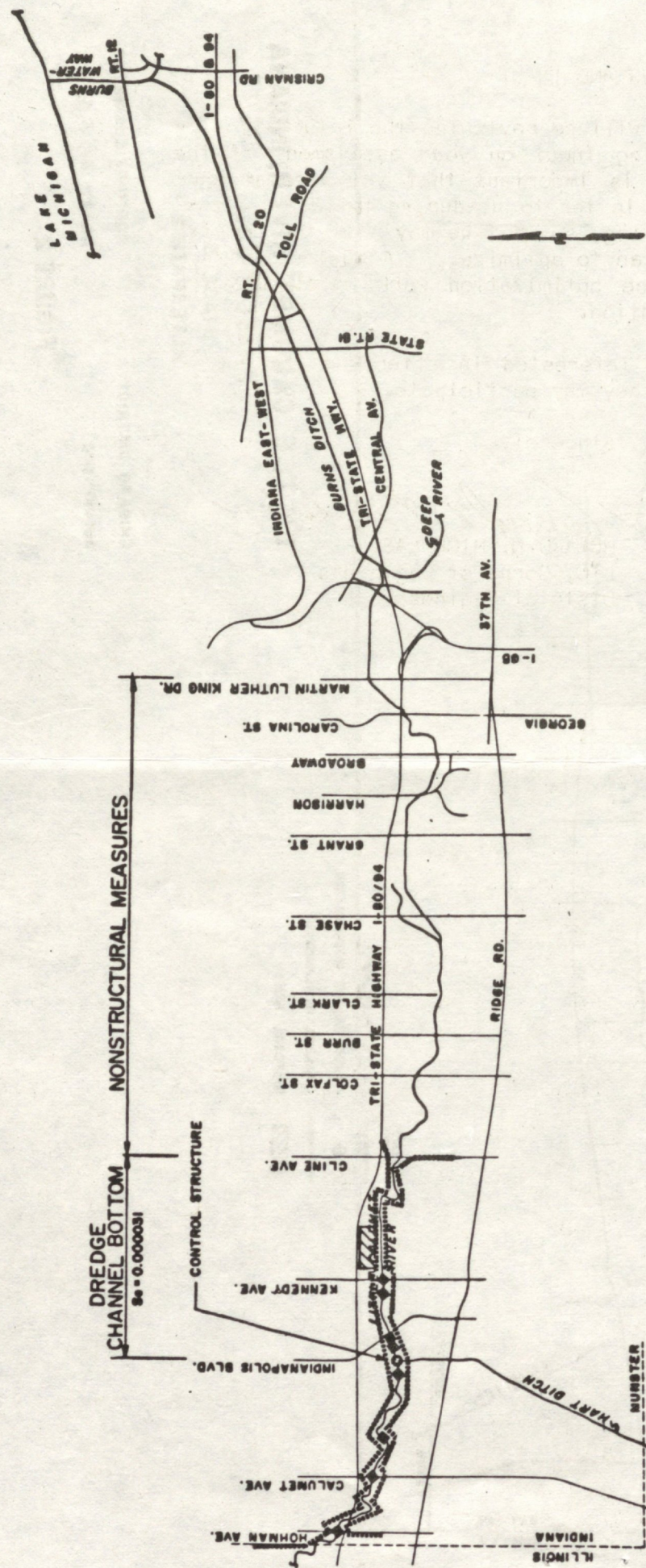
Sincerely,



HOWARD N. NICHOLAS  
LTC, Corps of Engineers  
District Engineer

3 Attachments



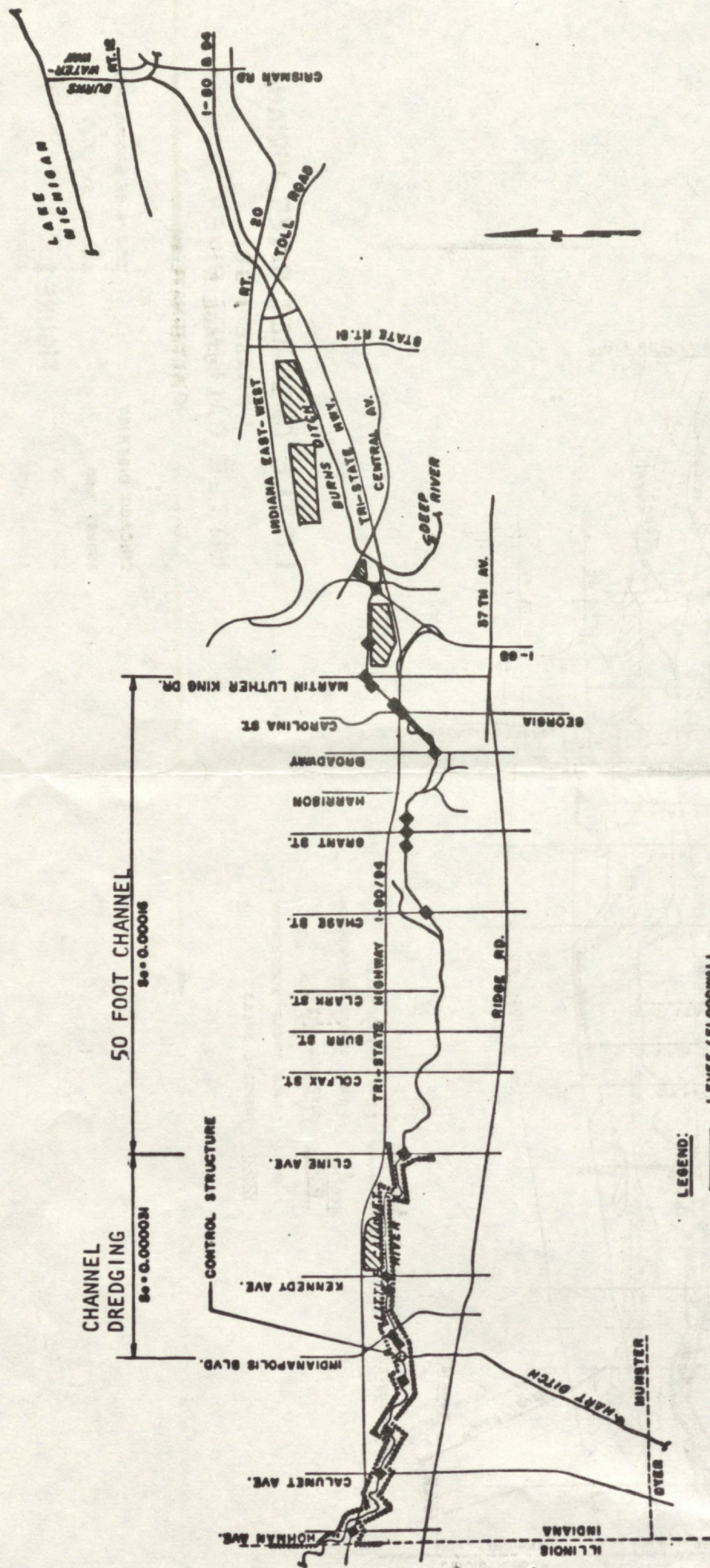


**LITTLE CALUMET RIVER, INDIANA**  
**PHASE I GDM**  
**STAGE 3**  
**ALTERNATE 1**

CHICAGO DISTRICT  
 CORPS OF ENGINEERS  
 AUGUST 1980  
 DRAWN BY: S.A.

**FIGURE 1**





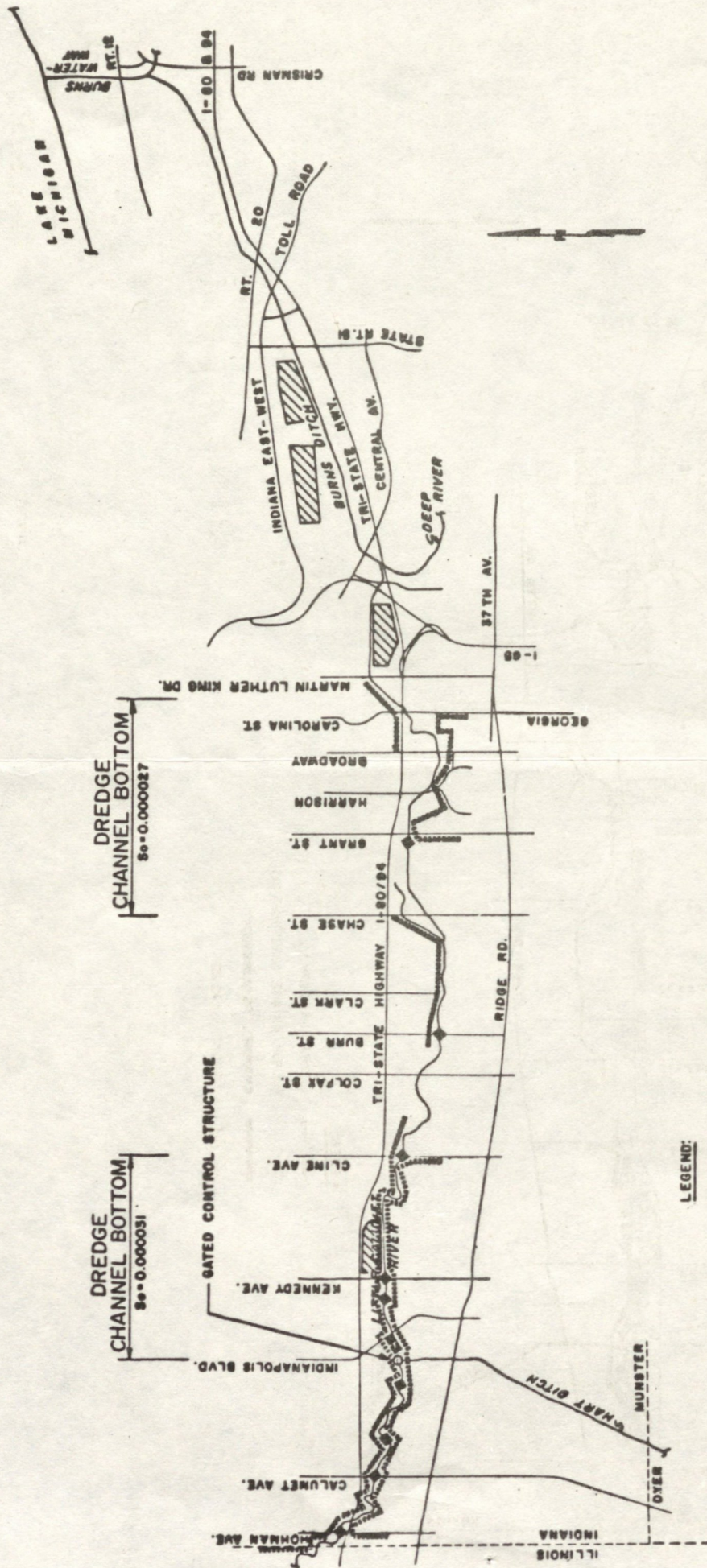
# LITTLE CALUMET RIVER, INDIANA PHASE I GDM STAGE 3 ALTERNATE 2

CHICAGO DISTRICT  
AUGUST 1960

CORPS OF ENGINEERS  
DRAWN BY: G. G.

FIGURE 2





LEGEND:

- LEVEE / FLOODWALL
- MAJOR BRIDGE MODIFICATION
- DISPOSAL AREAS

# LITTLE CALUMET RIVER, INDIANA PHASE 1 GDM STAGE 3 ALTERNATE 3

CHICAGO DISTRICT  
AUGUST 1980

CORPS OF ENGINEERS  
DRAWN BY: P. Py.

FIGURE 3